



Handy hint

How about avoiding the peak of the breeding season by saving your trip to a braided river until after January? Most chicks have usually fledged by this time. Thank you for your consideration.

Be aware of nesting birds . . . follow the Braided River Care Code

Every spring, native river birds come to braided rivers to breed. From early September to late January, too much disturbance from people, vehicles and pets can result in the deaths of their eggs and chicks.

YOU can help protect threatened river birds by following a few simple tips:

- River birds nest on the ground. Their eggs and chicks are extremely well camouflaged and are almost impossible to spot from a vehicle. To avoid crushing them, please refrain from driving in riverbeds from September to January. Instead, park on a bank and walk to your destination.
- Birds that are swooping, circling or calling loudly probably have nests nearby. Move away so they can return to them, or their eggs and chicks could die.
- A dog running loose can wreak havoc in a nesting colony. Leave your dog at home or keep it under strict control during the breeding season.
- If you use a jetboat, be aware that jetboats disturb birds and can wash away nests near the water's edge. The speed limit for boats is 5 knots within 200 metres of the bank on many rivers (see Environment Canterbury Navigation Bylaws 2005 for exemptions).

Further information

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For information about braided rivers in the upper Waitaki and Project River Recovery visit:
www.doc.govt.nz/braidedrivers

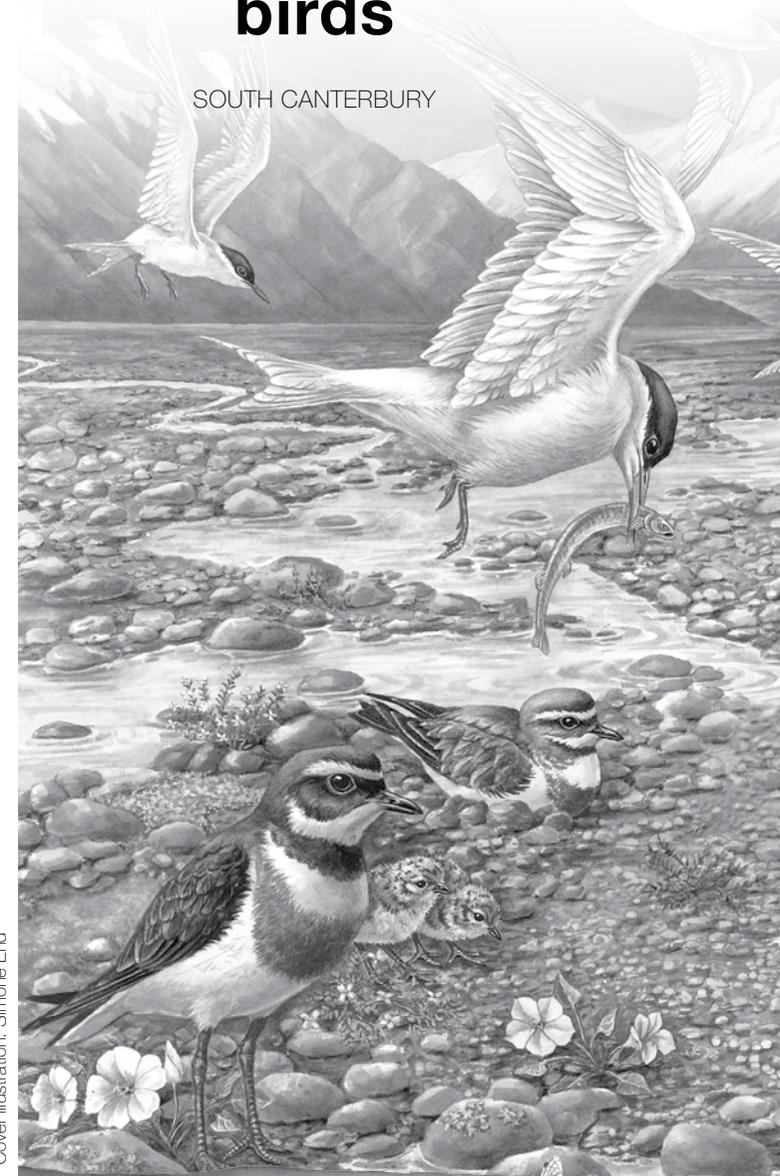
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Conservation of braided river birds



SOUTH CANTERBURY



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Te Papa Atawhai



Photo: C. Woolmore

New Zealand's braided rivers are special environments. Much of the wildlife adapted to live in them is unique. The extent and quality of this habitat is declining and many of the species inhabiting braided rivers are threatened with extinction.

What's special about braided rivers?

Braided rivers are a network of ever-changing channels weaving between temporary shingle islands. The riverbed is completely covered by water only during large floods.

Braided rivers are scarce on a worldwide scale. They are recognised in New Zealand as naturally rare ecosystems. Braided rivers are a prominent feature on the eastern side of New Zealand's Southern Alps/ Kā Tiritiri o te Moana, especially in Marlborough and Canterbury.

Numerous plants and animals are adapted to living on these dynamic riverbeds. These species will become extinct unless the threats to their survival are removed. Threatened species include birds, fish, insects, spiders and plants. Various other plants and animals live in braided rivers but are also found in other habitats.

The significance of this habitat and its unique species makes braided rivers important on a national and international scale.

Threatened habitat—threatened species

Introduced plants overrun open riverbeds

Many plant species were brought into New Zealand by European settlers for agricultural or garden use. Some of these plants—willow, gorse, brier, broom and lupin—have invaded braided rivers, changing the natural conditions. These species have become weeds and the fragile ecology of the braided river system is being destroyed by their invasion.

High islands are the first to be invaded by weeds. Unfortunately, these islands are the best nesting sites for river birds as they are safest from flooding. After weed invasion birds are forced to nest nearer to water where their nests are more easily flooded.

Plants on river islands trap silt leading to an increase in island height over time. The river becomes confined to channels. This leads to a loss of shallow-water feeding areas needed by wading birds. Silt build-up also increases the risk of flooding of neighbouring land as there is less room in the stable channels for extra water.

Tall plants provide cover for predators such as cats, stoats and ferrets, making river birds more vulnerable to attack. The vegetation provides food for rabbits which in turn attract predators to the area.

Didymo is an invasive alga becoming established in braided rivers. It can cover the bed of the river, altering the habitat of the insects that river birds depend on for food.

Changes to the natural flow of water alters habitat

Activities such as damming, diversion and water-extraction impact negatively on river wildlife in some areas.

- Loss of water and habitat can reduce the food supply—aquatic insects—for river birds.
- Seasonal floods are needed to wash newly established weeds off the riverbed. Loss of water, or

reduced flood size and frequency due to damming, can also allow greater weed growth.

- Decreased water depth and width increases predator access to islands, making nesting birds more vulnerable to predation.

Riverbed works may destroy habitat

Work in riverbeds is done for many reasons, including flood control, road and bridge construction, gravel extraction, land development, and water diversion. These activities can negatively affect braided river birds. For example, machinery in riverbeds during the breeding season may disturb breeding birds and destroy nests, killing eggs and chicks.

Pollutants can kill birds' food supply

Pollutants which reduce water quality or insect numbers will affect the river birds. Pollutants may include sewerage pond effluent, industrial discharges, or farm runoff.

Recreational activities disturb birds

Unattended eggs and young chicks are extremely vulnerable to predation and cold temperatures. If parent birds are kept away from their nests the eggs and young chicks may die. People, and their dogs, are common causes of this disturbance. Vehicles on riverbeds can run over eggs and chicks. The wash from speeding jetboats can erode banks, flood nests, kill chicks and disrupt feeding.

So please... follow the Braided River Care Code printed on the back of this pamphlet. By following the code the effects of your activities on the river birds will be minimised.



Braided river birds

Banded dotterel/turiwhatu

Charadrius bicinctus bicinctus

In the North Island banded dotterels breed mostly on harbours and coastal beaches. But in the South Island large numbers live inland on braided rivers and sparsely vegetated river terraces. Although they are the most numerous wading bird on braided riverbeds they are also classified as a threatened species (nationally vulnerable¹). While some South Island banded dotterels move to the coasts of both islands during winter, many migrate to the warmer climate of Australia.

Banded dotterel/turiwhatu



Wrybill/ngutu pare

Anarhynchus frontalis

No other bird in the world has a bill like New Zealand's wrybill. Its bill curves to the right, allowing it to probe for insects under river stones. This small bird is well camouflaged while it nests amongst stones in the riverbed. In winter, wrybills migrate to North Island harbours and feed in flocks on the mudflats. Wrybills are classified as a threatened species (nationally vulnerable¹) due to their low and declining numbers. The continuing loss of suitable habitat and high levels of predation are the main causes of the decline.

¹ Miskelly, C.M.; Dowding, J.E.; Elliott, G.P.; Hitchmough, R.A.; Powlesland, R.G.; Robertson, H.A.; Sagar, P.M.; Scofield, R.P.; Taylor, G.A. 2008. Conservation status of New Zealand birds, 2008. Notornis 55: 117-135.

South Island pied oystercatcher/tōrea

Haematopus finschi

In late July these oystercatchers establish territories in South Island riverbeds and surrounding farmland. Breeding occurs between September and January. Pairs are very territorial, making a great fuss and display when other birds are nearby or when people walk too close to their nest. You can hear their shrill piping calls as they fly overhead disputing territorial boundaries with other oystercatchers. During the winter they flock on harbours of both the North and South Islands. South Island pied oystercatcher numbers are declining¹.

South Island pied oystercatcher/tōrea



Black stilt/kakī

Himantopus novaezelandiae

The black stilt is one of the rarest waders in the world with a threat classification of nationally critical¹. Once common throughout New Zealand, this species is now confined to the upper Waitaki catchment. Black stilts use braided riverbeds, swamps and tarns for feeding and breeding. Unlike other riverbed birds, black stilts seldom migrate to the coast in winter. Instead they continue to forage on braided rivers and deltas which do not usually freeze over. Due to the combined impacts of habitat loss and predation the wild population was reduced to a low of 23 birds in 1981. As a result of Department of Conservation intervention with an intensive programme of captive breeding and release, management in the wild, and habitat protection, the wild breeding population is steadily increasing.

Black-billed gull/tarāpunga

Larus bulleri

Unlike the coastal red-billed gull, the black-billed gull only visits the coast in the winter, after the breeding season. During the rest of the year, the black-billed gull is found inland, breeding and feeding in colonies on shingle islands in rivers. They do not choose the same sites or the same rivers for breeding each year, so colonies vary in size and location. The black-billed gull is classified as a threatened species (nationally endangered¹).

Black-billed gull/tarāpunga



Black-fronted tern/tarapirohe

Black-fronted tern/tarapirohe

Chlidonias albobstriatus

Most terns are seabirds but the black-fronted tern lives and breeds inland, only visiting the coast to feed in autumn and winter. Rivers, lakes, deltas and ploughed fields are the feeding grounds of these terns. They breed mainly on braided rivers. The birds defend their eggs and chicks by darting at intruders, calling loudly while swooping past. Terns often desert their nests if people disturb them. Black-fronted terns have declined in numbers for the same reason as the wrybill. The black-fronted tern is classified as a threatened species (nationally endangered¹).

Feeding

All of these birds feed on insects found in braided rivers. In the water, under the stones, you will find the larvae of insects such as mayflies and caddisflies. Look in riffles (shallow rapids) where the bubbling water has a high level of oxygen to support large insect numbers. Mayfly larvae are fast-moving and hide under rocks. Some caddisfly larvae build a case of sand grains to hide in. You can often see adult flies flying over the water.

Each bird species has evolved to feed on insects in distinct ways. Specialisation minimises competition for food between the bird species.

Wrybills feed in shallow channels, riffles and the edges of pools. Their bent bill is specially adapted to allow them to reach under stones for mayfly larvae.

Black-fronted terns and **black-billed gulls** feed on the wing over main channels, catching insects in the air or scooping fish and insects from the water's surface. They sometimes feed on insects from surrounding farmland.

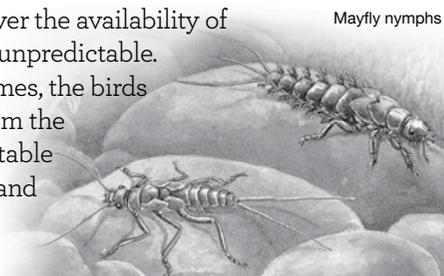
Black stilts, with their long legs, wade in deeper slow-moving water, reaching insects on the bottom with their long necks and bills. Sometimes they dart at insects and small fish in riffles or muddy areas.

The long bill of **South Island pied oystercatchers** allows them to probe deep into mud, sand or under pebbles, to find worms and insects. As well as using riverbeds oystercatchers also probe for food on pasture and ploughed land.

Banded dotterels feed on moths, flies and beetles found among scattered low vegetation on the high parts of the riverbed and along the muddy edges of lakes and rivers. They have a distinctive run-stop-peck-run movement while they feed.

In a braided river the availability of food is always unpredictable.

During lean times, the birds must range from the riverbed into stable side channels and pond areas to find food.



Mayfly nymphs

Wrybill chick

Breeding

Breeding on a riverbed is a risky business. Many eggs and chicks do not survive. Riverbed birds have adapted to cope with floods and are able to re-nest if eggs or chicks are lost. This is an important adaptation for breeding in an unstable environment where floods are common.

Each pair of wrybills, stilts, dotterels and oystercatchers defends a territory and nests alone. These species rely on camouflage to protect their eggs and chicks. They also actively defend their nest using distraction behaviours. The chicks are active soon after hatching, leaving the nest to follow the parents as they forage for food. Within hours, newly-hatched chicks can hunt for food and swim if necessary.

Terns and gulls nest in colonies on open shingle. This gives parent birds a better chance of noticing approaching predators. Groups of birds are better able to scare them off. Their eggs and chicks are also well camouflaged. But, unlike other species, young gulls and terns must remain near the nest, relying on parents to bring food until they can fly and hunt for themselves.

Birds that find and hold good nesting sites are more likely to raise chicks successfully. The best nest sites have:

- islands surrounded by a moat of water for protection from predators
- high points which are less flood prone
- little or no vegetation for all round visibility
- a good food supply close at hand
- little or no disturbance.



Cryptic nest and eggs

Predators

Swamp harriers/kāhu and black-backed gulls/karoro are natural predators of braided river birds. However, these predators have taken advantage of changes made by humans and their numbers have increased dramatically. More predators in an area pose a greater threat to ground-nesting river birds trying to protect their eggs and chicks.

Over time New Zealand's braided river birds have developed good camouflage to cope with native avian predators. Nests are hardly more than a slight hollow in the gravel, and the eggs blend well with the stones. The speckled chicks are also difficult to see and have a natural instinct to freeze when alarmed. Adults' feathers are greys and browns to blend with the river environment they inhabit.

Parent birds defend eggs and chicks by distracting the predator away from the nest. Terns, gulls and oystercatchers may dive-bomb and call loudly. Wrybills, oystercatchers and dotterels often pretend to have a broken wing to lead predators away.

New Zealand's ground-nesting birds have evolved without mammalian predators that move quickly and have a keen sense of smell to target prey. The defences our native birds have developed against avian predators are little use against introduced predators such as cats, stoats, ferrets, rats and hedgehogs.

Ensuring the survival of the birds' natural open habitat is important in combating predation.



Photo: P. R. Clerke

Photo: G. Harper